

Review of Historical Beryllium Records at LANL

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Beryllium Data Project at LANL

- ❖ Collect and computerize all Be information
- ❖ Information placed into a standardized format (“Work Card”) and Sampling Data Sheet
- ❖ Interpretation of data/information required

Historical Perspective at LANL

- ❖ Be machining and other operations conducted at LANL since \approx 1945
- ❖ Hazards of Be not recognized until 1949 with the establishment of the TLV
- ❖ No restrictions or precautions taken
- ❖ Exposures probably high

Historical Perspective at LANL

- ❖ 7 cases of chronic beryllium disease (CBD) among 160-200 workers exposed to Be between 1943-1952
- ❖ 1 case of CBD in the early 1970's*
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 - * *exposure occurred elsewhere*
- ❖ ~300 workers in special medical surveillance today
- ❖ 70+ lymphocyte proliferation tested
- ❖ 1 positive

Historical Perspective at LANL

- ❖ 1948-49 Harriet Hardy conducted periodic medical evaluations (skin & lung exam, disease symptoms, weight loss, pulmonary function tests) on Los Alamos Be workers
- ❖ 1948 Harry Schulte initiated engineering controls and monitoring for Be exposure
- ❖ Medical surveillance of Be workers has continued uninterrupted for 49 years

Beryllium Record Contents

- ❖ Safety Meeting Training
- ❖ Locations by TA, Bldg., Room where Be samples are taken
- ❖ Some operation descriptions and hood velocities
- ❖ 1953 record of Be Machine Shop being dismantled & moved and specific workers involved
- ❖ Name of groups where Be workers are employed
- ❖ Be air and swipe samples
- ❖ Enrollments into Be physical exams
- ❖ Records of “Be incidents”

Historical Be Operations Conducted at LANL

- ❖ Be brazing and machining
- ❖ Burning of high explosives containing Be
- ❖ Explosive hydrotesting with Be
- ❖ Be foils for spacecraft
- ❖ Be coating of glass microspheres
- ❖ Be heat treat operations
- ❖ Abrasive blasting of Be windows
- ❖ Be laundry operations

Beryllium Sampling Records

1949-1988

10,444 records

1989-1997

7,626 records

Recognized Hazards of Be in 1948

- ❖ Be poisoning only recently and still not completely recognized by industry
- ❖ Be oxides are common factor in all cases of disease
- ❖ Source or process by which Be was obtained or made has a bearing on cases
- ❖ Acute poisoning seldom fatal. Recovery takes ≈ 3 months with proper treatment
- ❖ Chronic poisoning is much more serious. May appear ≈ 6 months or more after exposure (possibly just once and briefly)
- ❖ Recovery takes 1 1/2 - 3 years with a 20% rate of fatality

Informational Summaries

- ❖ Number of Be samples by person affected
- ❖ Specific information on 149 employees
- ❖ Sampling shows a marked increase in the 1970's

Additional Records to be Examined

- ❖ Payroll records of workers in Be shop
- ❖ Scientific & program documents describing operations where Be used
- ❖ Examine feasibility of using job titles (e.g. machinist)

Future Actions

- ❖ Perform additional QA on the data collected
- ❖ Perform further analysis of existing data
- ❖ Develop job exposure matrices using relevant air sampling data, health outcomes, and job histories
- ❖ Identify additional work locations of significant concern
- ❖ Clearly identify LANL employees having significant vs. incidental exposures to Be
- ❖ Develop Be exposure questionnaire
- ❖ Integrate with the Former Worker Medical Surveillance program at LANL being jointly conducted with Johns Hopkins